

The opinion in support of the decision being entered today was **not** written for publication and is **not** binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte KAZUAKI WATANABE, SHINICHI KATO
and BUNJI ISHIMOTO

Appeal No. 2005-1629
Application No. 10/001,256

HEARD: MARCH 23, 2006



Before WARREN, WALTZ, and FRANKLIN, Administrative Patent Judges.
WALTZ, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the primary examiner's refusal to allow claims 1, 3 and 8 through 10, as amended subsequent to the final rejection (see the amendment dated May 10, 2004, entered as per the Advisory Action dated June 1, 2004, where the examiner states that the final rejection under 35 U.S.C. § 112, ¶2, has been overcome by this amendment). Claims 4 and 5 are the only other claims pending in this application, and stand objected to as depending on a rejected

Appeal No. 2005-1629
Application No. 10/001,256

claim but would be allowable if rewritten in independent form including all limitations of the base claim and any intervening claims (Answer, page 2, ¶(3)). We have jurisdiction pursuant to 35 U.S.C. § 134.

According to appellants, the invention is directed to an aqueous ink composition comprising at least water, a first polymer, a second polymer or copolymer containing sulfonyl groups, a pigment dispersed by the first polymer, and an ultra-penetrating agent which is a combination of an acetylene glycol compound represented by formula (1) and triethylene glycol monobutyl ether (Brief, page 7). A copy of representative independent claim 1 is attached as an Appendix to this decision.

Appellants state that claims 4 and 5 do not stand or fall with claims 1, 3 and 8-10 (Brief, page 10). Since claims 4 and 5 are not part of this appeal, as noted above, we consider this statement by appellants to mean that the claims on appeal (claims 1, 3 and 8-10) stand or fall together since no reasons have been set forth for the separate patentability of any individual claim. See 37 CFR § 1.192(c)(7)(2003), now 37 CFR § 41.37(c)(1)(vii)(2004). Accordingly, we select claim 1 from this group of claims and decide the grounds of rejection in this appeal on the basis of this claim alone. See also *In re*

Appeal No. 2005-1629
Application No. 10/001,256

McDaniel, 293 F.3d 1379, 1382-83, 63 USPQ2d 1462, 1464 (Fed. Cir. 2002).

The examiner has relied upon the following references as evidence of obviousness:

Sano et al. (Sano)	5,769,930	Jun. 23, 1998
Anton et al. (Anton)	5,912,280	Jun. 15, 1999
Bessho et al. (JP '525) (published Japanese Patent Application) ¹	11-217525-A	Aug. 10, 1999

Claims 1, 3 and 8-10 stand rejected under 35 U.S.C. § 103(a) as unpatentable over JP '525 or Anton, each in view of Sano (Answer, pages 4-5).² Based on the totality of the record, including due consideration of the Brief, Reply Brief, Supplemental Reply Brief, the Answer, and the Supplemental Answer, we *affirm* the rejections on appeal essentially for the reasons stated in the Answers as well as those reasons set forth below.

¹We rely on and cite from a machine-assisted translation of this document, made of record by the examiner as an attachment to the final Office action dated Jan. 29, 2004.

²In the interests of judicial economy, we have combined the two rejections on appeal since each rejection includes the same claims and the same secondary reference (Sano).

OPINION

The examiner finds that JP '525 discloses ink jet ink compositions comprising water, glycol ether, pigment, a polymer dispersant, and a polymer emulsion prepared by sulfonating diene-based polymers with a sulfonating agent such as sulfuric acid or sulfuric anhydride (Answer, page 4). The examiner also finds that Anton discloses ink jet ink compositions comprising water, pigment, a polymeric dispersant, and a polymer emulsion obtained from sulfonyl group containing monomers (Answer, page 5). Although the examiner admits that there is no disclosure of an ink cartridge in JP '525 or Anton, the examiner finds that it "is clear that an ink jet printer would inherently contain the ink in an ink cartridge prior to printing" (Answer, pages 4 and 5). The examiner also finds that the difference between the primary references (JP '525 and Anton) and the claimed subject matter is the requirement in the claims on appeal for the specific penetrating agent of a combination of acetylene glycol (formula (1)) and triethylene glycol monobutyl ether (*id.*). Accordingly, the examiner applies Sano as the secondary reference for its teaching of a preferred ink jet ink penetrating agent that is a combination of acetylene glycol and triethylene glycol monobutyl ether (Answer, pages 5-6). From these findings, the examiner

concludes that it would have been obvious to one of ordinary skill in this art at the time of appellants' invention to use the penetrating agent taught as preferred by Sano in the ink jet ink compositions of JP '525 or Anton (*id.*). We agree.

Appellants do not dispute the examiner's factual findings from the three applied references (see the Briefs in their entirety). However, appellants argue that there is no motivation established for combining the references as proposed by the examiner (Brief, page 11; Reply Brief, page 2; Supplemental Reply Brief, pages 2-4). Specifically, appellants argue that Anton teaches that, although surfactants may be used to alter the surface tension of the ink composition, as well as to maximize penetration, "the type of surfactants and the amounts used need to be carefully selected to avoid pigment dispersion destabilization or to negate the benefits of the present inks" (Brief, sentence bridging pages 16-17). Although appellants admit that JP '525 discloses a specific penetrating agent "that ... arguably has a similarity to the claimed penetrating agent" (Brief, page 17),³ appellants argue that the "main issue" is that the penetrating agents taught by Sano are designed specifically

³See JP '525, ¶[0030], where it is taught that surfactants such as "diethylene glycol monobutyl ether" can be added to the ink compositions.

for an alginate-containing ink composition, which alginate mitigates the effects of the penetrating agent, and thus there is no motivation to use the penetrants of Sano in the inks of another composition which does not contain alginates (Brief, pages 12-13; Reply Brief, page 4; Supplemental Reply Brief, pages 3-4). Appellants further argue that Sano "teaches away" from the use of penetrants by cautioning that the coloring properties of the recorded image can be enhanced by reducing the penetration of a conventional ink (Brief, pages 12-13).

Appellants' arguments are not persuasive. As clearly taught by Sano, the use and amount of additives for any ink composition involves a balancing or trade-off of properties. As correctly quoted by appellants (Brief, pages 12-13), Sano teaches that in general it is preferred to inhibit the penetration of the ink to enhance the coloring properties (col. 1, ll. 25-27). However, Sano then teaches that it is also preferred to enhance the penetrating capacity of the ink in order to lessen or eliminate color bleeding (col. 1, ll. 27-29). Sano explains this trade-off between color bleeding and enhancing coloring properties at col. 1, l. 50-col. 2, l. 5. Sano also teaches the effect of adding an alginate to the ink composition, namely "a phenomenon such as lateral development or vertical penetration of the ink

composition can be normally inhibited by the use of a penetrant, [but] the ink composition of the present invention can do [this inhibition] by the alginate incorporated therein" (col. 4, ll. 8-29). Sano further teaches the disadvantage of the alginate, which must be remedied by adding a liquid wetting agent (col. 5, ll. 28-36). Finally, Sano teaches that penetrating agents were used before in certain critical concentrations to attain enhanced penetrating power that lessens color bleeding, but with the use of alginates it is not necessary that the penetrating power be raised as high as for conventional ink compositions (col. 7, ll. 21-36). Thereafter, Sano teaches the many well-known penetrating agents useful in the art (col. 7, l. 37-col. 9, l. 4), specifically disclosing acetylene glycol surfactants (col. 8, formula (V)), diethylene glycol monobutyl ether (col. 8, l. 53; this is the same surfactant/penetrant exemplified by JP '525), the preferred triethylene glycol monobutyl ether (col. 8, ll. 55-57), as well as the most preferred combination of acetylene glycols and triethylene glycol monobutyl ether (col. 8, l. 62-col. 9, l. 4; see also Example 6). Accordingly, we determine that one of ordinary skill in this art would have been motivated to use any well known penetrating agent, as taught by Sano, in place of the common penetrant diethylene glycol monobutyl ether

in the non-alginate containing inks disclosed by JP '525. See *In re Fout*, 675 F.2d 297, 301, 213 USPQ 532, 536 (CCPA 1982) ("Express suggestion to substitute one equivalent for another need not be present to render such substitution obvious"). It would have been equally obvious to use any of the well known penetrants taught by Sano in the ink composition of Anton which does not contain alginates, especially in view of Anton's teaching regarding the type and amount of surfactant, since Sano also teaches the controlled addition of surfactants/penetrants depending on the amount (Anton, col. 8, ll. 40-46; Sano, col. 7, ll. 21-36).⁴

For the foregoing reasons and those stated in the Answer, we determine that the examiner has established a prima facie case of obviousness in view of the reference evidence. In rebuttal appellants argue evidence of unexpected results (Brief, pages 13-15 and 17; Reply Brief, pages 4-5; Supplemental Reply Brief, page 5). Appellants argue that the Declaration under 37 CFR § 1.132 by Watanabe dated Nov. 10, 2003, compares the closest prior art (JP '525) with the claimed invention and the examiner has not

⁴We also note that the claims on appeal do not recite any amount of the "ultra-penetrating agent," even though appellants' specification teaches that in low amounts the combination of claimed penetrants does not have sufficient penetrating ability (specification, page 23, ll. 1-10).

disputed the improved properties shown (Brief, pages 13-15). Therefore we begin anew and consider the totality of the record, including evidence for and against obviousness. See *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

We determine that appellants' evidence of non-obviousness is not persuasive for the following reasons. First, Sano teaches that the specific combination of penetrants as recited in claim 1 on appeal is "particularly preferred" (col. 8, l. 66-col. 9, l. 4), thereby evincing that improved results would have been expected for this combination of surfactants/penetrants. See *In re Skoner*, 517 F.2d 947, 950, 186 USPQ 80, 82 (CCPA 1975) ("Expected beneficial results are evidence of obviousness of a claimed invention, just as unexpected beneficial results are evidence of unobviousness"). Even though maximum penetration is not desired with the alginate-containing ink compositions of Sano (col. 7, ll. 21-36), the maximum effect of penetrants was taught by Sano as controllable by the amount used. Therefore achieving the maximum effect of penetration by optimizing the amount of penetrant in non-alginate or conventional ink compositions would have also been well within the skill of the art. Second, the cause and effect of the comparative testing is lost in the use of

multiple variables. See *In re Dunn*, 349 F.2d 433, 439, 146 USPQ 479, 483 (CCPA 1965) ("The cause and effect sought to be proven is lost here in the welter of unfixed variables"). See page 3 of the Watanabe Declaration, where Comp. Ex. 2 employs only 5% of the penetrant while the total amount of penetrant in the example of the invention is 6% (compare Example 1, Ink Set A, with Comp. Example 2, Ink Set G). Thus the results do not solely depend on the difference in the penetrant but also in the *amount* of penetrant. As previously discussed, the claims are not limited to any amount of penetrant. Third, appellants have not explained why the one specific example (Example 1, Ink Set A) is commensurate in scope with the subject matter on appeal, since the example is directed to a specific penetrant (Surfynol 104) in a specific amount, a specific sulfonyl-containing diene with a specific dispersant resin, and a specific pigment, while the claims on appeal are not so limited. See *In re Boesch*, 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980).⁵

⁵Appellants argue that the examiner has not weighed the evidence of unexpected results against the factors giving rise to the alleged prima facie case of obviousness, but instead has relied solely upon an inherency rationale (Supplemental Reply Brief, page 5). We determine that the examiner has weighed the evidence of allegedly unexpected results but found these results to be expected (Answer, page 10). See *In re Skoner, supra*. If the examiner, by stating that the combination of references would "intrinsically improve gloss differential and glossiness" (Answer, page 11), means that no showing of unexpected results is possible to overcome the

Appeal No. 2005-1629
Application No. 10/001,256

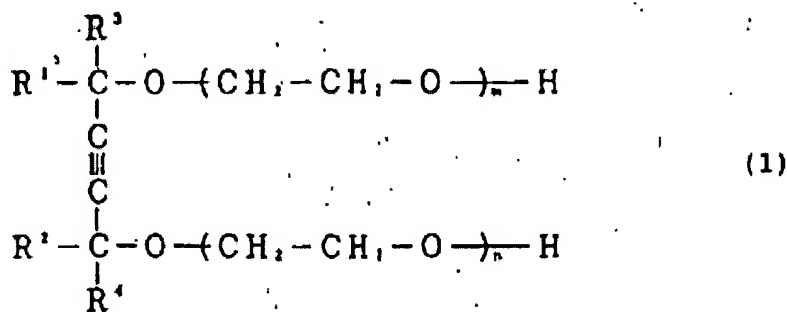
Based on the totality of the record, including due consideration of appellants' evidence and arguments, we determine that the preponderance of evidence weighs most heavily in favor of obviousness within the meaning of section 103(a). Therefore we affirm the examiner's rejections of the claims on appeal under section 103(a) over JP '525 or Anton, each in view of Sano.

The decision of the examiner is affirmed.

evidence of obviousness, then the examiner is in error. *See KAO Corp. v. Unilever U.S., Inc.*, slip opinion at page 3 (Fed. Cir. 3/21/06) ("If the evidence used to establish the prima facie case were necessarily sufficient to overcome rebuttal of that case, rebuttal would be impossible. That result is simply not logical."). However, any such error is harmless since the evidence of unexpected results has been considered adequately in the Answer.

CLAIM APPENDIX

1. An aqueous ink composition comprising at least water, a first polymer, a second polymer or copolymer which is a sulfonyl group-containing (co) polymer, a pigment dispersed by the first polymer, and an ultra-penetrating agent, wherein the sulfonyl group-containing (co) polymer is present in the form of an emulsion, and wherein the ultra-penetrating agent is a combination of a compound represented by the following formula (1) and triethylene glycol monobutyl ether:



wherein, $0 \leq m+n \leq 50$, and R^1 , R^2 , R^3 and R^4 each independently is an alkyl group.

Appeal No. 2005-1629
Application No. 10/001,256

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